DOCUMENT RESUME

ED 382 860 CE 069 015

AUTHOR Owens, Thomas R.
TITLE Washington Year Two Tech Prep Planning and Implementation Survey Summary.
INSTITUTION Northwest Regional Educational Lab., Portland, OR. Education and Work Program.
PUB DATE 27 Apr 95
NOTE 24p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Articulation (Education); Consortia; Cooperative Planning; Core Curriculum; Counseling Services; Curriculum Development; Educational Cooperation; Educational Needs; Enrollment; *Financial Support; Inservice Teacher Education; Marketing; *Outcomes of Education; Program Costs; *Program Development; Program Evaluation; *Program Implementation; School Business Relationship; School Counseling; Secondary Education; Staff Development; *State Programs; State Surveys; Student Characteristics; Tables (Data); *Tech Prep; Two Year Colleges
IDENTIFIERS *Washington

ABSTRACT

All of Washington's 22 tech prep consortium directors responded to a 1994 survey examining selected aspects of tech prep planning/implementation. Ten of Washington's 22 consortia reported having tech prep students (only 1 of 15 consortia in 1992-93), and secondary student enrollment in tech prep programs totaled 2,203 (170 in 1992-93). All 19 consortia reporting on the core elements of their tech prep programs required students to complete a student education plan, 18 required students to take vocational-technical courses, and 11 required students to take at least 1 applied academics course. Eight or more of the consortia had formal articulation agreements in business/office/marketing, engineering/technology, and mechanical/industrial/trade. Two had agreements in agriculture, and three had agreements in health/human services. Throughout Washington, 260 secondary schools, 56 postsecondary institutions, 168 businesses, and 40 labor groups were involved in tech prep planning and/or implementation. Lack of staff, time, and money dedicated to tech prep and lack of truly integrated curricula were the most commonly perceived program limitations. Compared with the previous year, a smaller percentage of the consortia's funds was spent on general administration and a larger percentage was spent on staff and curriculum development. (MN)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

ED 382 860

The Northwest Regional Educational Laboratory

# RESEARCH REPORT

# WASHINGTON YEAR TWO TECH PREP PLANNING AND IMPLEMENTATION SURVEY SUMMARY

**April 27, 1995**

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Northwest Regional Educational Laboratory
101 S.W. Main Street, Suite 500
Portland, Oregon 97204

CE 069 015

BEST COPY AVAILABLE

# WASHINGTON YEAR TWO TECH PREP PLANNING AND IMPLEMENTATION SURVEY SUMMARY

**Prepared by**

**Thomas R. Owens, Senior Associate**

**Submitted by**

**Education and Work Program**
**Northwest Regional Educational Laboratory**
**101 S.W. Main Street, Suite 500**
**Portland, OR 97204**

**April 27, 1995**

# ACKNOWLEDGMENTS

Staff at NWREL wish to express appreciation to Ray Harry, Washington state Tech Prep program coordinator at the State Board for Community and Technical Colleges for coordinating the activities leading to this report and for providing background materials to enable the writer a clear view of Tech Prep in Washington. We also wish to thank Marsha Silverberg at Mathematica Policy Research, Inc. for providing the data disk containing the information from the local Tech Prep surveys from Washington. Appreciation is also given to Steve Funk-Tracy of NWREL for his skill in producing the tables used in this report. Finally, we wish to thank all 22 consortium directors in Washington for their time in completing the local survey, thus giving the state a 100 percent response rate. Without their cooperation, this report would not have been possible.

# TABLE OF CONTENTS


Acknowledgments ..... ii

List of Tables ..... iv

Executive Summary ..... 1

Introduction ..... 3

Report Findings ..... 3

1. Core Elements of Tech Prep ..... 3
2. Description of Tech Prep Students ..... 4
3. Articulation ..... 8
4. Curriculum Development ..... 10
5. Counseling and Guidance ..... 11
6. Student Outcomes ..... 11
7. Consortium Governance ..... 13
8. Funding ..... 14
9. Business/Industry Involvement ..... 15
10. Perceived Strengths ..... 16
11. Perceived Limitations ..... 17

# LIST OF TABLES


1 Number of Consortia Requiring Identified Core Elements of Tech Prep....4

2 Consortium-wide Definition of Tech Prep Students....5

3 Number of Tech Prep, Vocational, and Total Students in Participating Districts for 1992-93 and 1993-94....6

4 Number of 1993-94 Tech Prep Students Reported....7

5 Characteristics of Secondary Tech Prep Students....7

6 Enrollment of Secondary Tech Prep Students by Career Cluster....8

7 Number of Agreements Employing Identified Characteristics of Articulation Agreements....9

8 Career Cluster Emphasis of Articulated Programs....9

9 Use of Commercially Available Applied Academics Curricula....10

10 Consortia with Defined Tech Prep Career Cluster Curricula (At least one school implements vocational curriculum in the cluster)....11

11 Consortia Providing Career Development at Some or All Schools....12

12 Educational Activities of Tech Prep Graduates....12

13 Number of Agencies Involved in Planning or Implementing Tech Prep in Washington State....13

14 Representation on Consortium Governing Boards....14

15 Sources for Tech Prep Funding....15

16 Types of Tech Prep Expenditures....15

17 Type of Business and Industry Involvement....16

18 Successful Aspects of Tech Prep Consortia....17

19 Greatest Obstacles to Tech Prep Implementation Identified at the Secondary and Postsecondary Levels....18

# EXECUTIVE SUMMARY

This report, prepared by the Education and Work Program of the Northwest Regional Educational Laboratory (NWREL), summarizes and discusses the implications a survey of local Tech Prep consortia in Washington state. The survey, conducted by Mathematica Policy Research, Inc. in the fall of 1993 and again in 1994, was completed nationwide by over 800 local Tech Prep consortium directors, in Washington by 15 local Tech Prep consortium directors in 1993, and by all 22 directors in 1994. Washington was one of 25 states nationwide to get a 100 percent response rate in 1994.

The survey was designed to describe Tech Prep planning and implementation processes involving the composition of the Tech Prep consortium; consortium governance and staff; funding and resources; the Tech Prep program and population; choices for secondary Tech Prep students; secondary and postsecondary curriculum development and articulation; counseling, guidance, and career development; staff development and promotion of Tech Prep student outcomes; and monitoring and evaluating Tech Prep progress. Areas surveyed will be surveyed again over the next two years.

The survey of local Tech Prep coordinators is one of three major activities being conducted by Mathematica Policy Research, Inc. and its subcontractor, Northwest Regional Educational Laboratory, as part of a national five-year evaluation of the Tech Prep Education Program. The other two activities are a state-level Tech Prep coordinator survey to document the state's role in funding Tech Prep development, and an in-depth study of local programs to document how successful programs are planned, designed, and implemented. The study is based on an intensive examination of 10 local programs and includes yearly site visits and interviews with program administrators, other staff and community leaders, and a longitudinal study of the school records of two cohorts of selected 11th grade Tech Prep students from each site.

Data from the first survey of local Tech Prep consortia have been reported by Mathematica Policy Research, Inc. (Silverberg and Hershey, *The Emergence of Tech Prep at the State and Local Levels*, February 1995), and year two findings are being analyzed in the spring of 1995. This regional report is based on data supplied by Mathematica to the Washington state Tech Prep coordinator for further analysis and reporting. Washington has contracted with NWREL to assist in preparing this report. Listed below are the major findings.

- Only one of the 15 consortia in Washington enrolled Tech Prep students in the 1992-93 school year, while in 1994 10 of the 22 consortia reported having Tech Prep students. There were 170 secondary Tech Prep students enrolled in grades 9 to 12 in 1993, and 2,203 by the end of 1994. Students were mainly enrolled in the business/office/marketing areas.

- Nineteen of the 22 consortia reported on the core elements of their Tech Prep programs this school year. All 19 required Tech Prep students to complete a student education

plan, 18 required students to take vocational/technical courses, 14 required students to elect to be in Tech Prep, and 11 required students to take one or more applied academics courses.

Articulation agreements are formal, signed arrangements between secondary schools and community colleges designed to enable a community college to accept for credit certain high school courses that are part of a Tech Prep sequence. The most common feature of these agreements allows students who complete approved secondary courses to skip prerequisite or introductory courses at the postsecondary level. Eight or more of the consortia had articulation agreements in business/office/marketing, in engineering/technology, and in mechanical/industrial/trade. Two had an articulation agreement in agriculture; three had agreements in health/human services.

Applied academics courses are being implemented rather widely in Washington. The most frequently used commercial curriculum is Applied Mathematics (115 high schools), followed by Principles of Technology (98) and Applied Communication (85).

In 1994, the consortia reported 126 Tech Prep graduates who have pursued training beyond high school. There are 111 who were reported to have enrolled in community college and seven in a four-year college. There may have actually been more then seven who entered a four-year college but this information was not available to the consortium directors.

The Tech Prep survey reports that 260 secondary schools, 56 postsecondary institutions, 168 businesses, and 40 labor groups were involved in Tech Prep planning or implementation in Washington. Two-thirds or more of the consortia reported that businesses provided facility tours or other career awareness events, and helped develop curricula, define desired outcomes, and support staff development. Half of the consortia reported business help in youth apprenticeship and/or worksite learning slots, and in providing speakers and/or classroom instructors this year.

Lack of staff, time, and money dedicated to Tech Prep and lack of truly integrated curriculum were the most commonly perceived limitations of the program. The most successful aspects were collaboration between secondary and postsecondary educators and between vocational and academic educators; development of administrative support; development of increased awareness of Tech Prep among educators and the public; involvement of business, industry, and labor; and development of articulation agreements.

Since the prior year, the consortia have spent a smaller percentage of their funds on general administration and a larger percentage on staff development and curriculum development.

# INTRODUCTION

The Mathematica Policy Research, Inc. "Inventory of Local Tech Prep Planning and Implementation" contained 40 and 48 pages of questions used to provide a comprehensive description of Tech Prep in the fall of 1993 and 1994. This report is based upon selected findings from those surveys. Emphasis has been given to those areas for which the Tech Prep consortia in Washington had reasonable data at the time. Future reports can address information about the post-graduation experiences of secondary Tech Prep students and other findings that will be more available in future years.

This report covers 11 areas of findings:

1. Core elements of Tech Prep
2. Description of Tech Prep students
3. Articulation
4. Curriculum development
5. Counseling and guidance
6. Student outcomes
7. Consortium governance
8. Funding
9. Business/industry involvement
10. Perceived strengths
11. Perceived limitations

# REPORT FINDINGS

## 1. Core Elements of Tech Prep

While most people may agree on the basic outcomes desired for Tech Prep programs, there is no universal agreement on what core elements should be required of all Tech Prep students. Even in cases where a consortium director communicates a clear idea of what is required, there is often wide variation in practice across high schools within the consortium. The U.S. Department of Education has refrained from imposing a list of core elements required of all students.

The Mathematica Policy Research, Inc. survey identified 10 elements that could be considered core for Tech Prep programs. Most consortia in Washington did not require core elements of Tech Prep. Table 1, based on responses from three consortia in 1993 and five in 1994, shows elements that are considered essential for Tech Prep. In 1994 all five consortia required Tech Prep students to take academic or occupational courses related to a career cluster. Four of the five required students to take one or more applied academics

courses, complete a student educational plan, or make choices of a broad career cluster. Unlike 1993, none of the consortia in 1994 required students to have a career class or workplace exposure.

Because a varying number of Tech Prep consortia responded to the different questions on the survey, we will use a designation for each table reporting the number of consortia responding in each year (1993 and 1994) such as N = 3, 5 shown in Table 1. In this case, only three or five of the 15 or 22 consortia respectively had core elements required of *all* Tech Prep students.

**Table 1**

**Number of Consortia Requiring Identified Core Elements of Tech Prep**

**(N = 3, 5)**

| Core Elements of Tech Prep | Number of Consortia Requiring Element | |
|---|---|---|
| | 1992-93 | 1993-94 |
| Completion of student plan | 3 | 4 |
| Choice of a broad career cluster | 2 | 4 |
| Choice of an occupational specialty | 1 | 2 |
| Applied academic courses | 3 | 4 |
| Required academic or occupational courses related to a career cluster | 3 | 5 |
| Required number of career-related courses | 3 | 3 |
| Career development classes/individual guidance | 3 | 0 |
| Workplace exposure/instruction | 2 | 0 |
| Paid youth apprenticeship | 0 | 0 |
| Assignment to workplace mentor | 0 | 0 |

## 2. Description of Tech Prep Students

A key challenge in the evaluation of Tech Prep across the country is the definition given of Tech Prep students within and across consortia. Washington state has defined secondary Tech Prep students as "those students in grades nine through 12 who have completed an individual student plan and are enrolled in a planned and approved sequence of competency-based studies articulated between institutions. This sequence of studies must do the following:

- Lead to an associate degree, certificate, apprenticeship, or four-year degree
- Provide technical preparation in at least one field

- Build students' competence in the applications of mathematics, science, communication, and workplace skills"

Washington consortium directors often selected four essential elements in defining secondary Tech Prep students. Table 2 shows the elements identified by each site. As shown in Table 2, of the 19 coordinators responding to this survey question, all selected the need for students to develop an educational plan, 17 required students to take vocational/technical courses, 14 required students to be in Tech Prep, and 11 required students to take at least one applied academics class. Nine coordinators required all four elements for students to be considered in Tech Prep. These definitions are important when we discuss the number of Tech Prep students later.

**Table 2**

**Consortium-wide Definition of Tech Prep Students**

| | Consortium | Definition Elements* | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| 1. | Site A | x | x | x | x |
| 2. | Site B | x | x | x | x |
| 3. | Site C | x | x | x | x |
| 4. | Site D | x | x | x | x |
| 5. | Site E | | x | x | |
| 6. | Site F | x | x | | |
| 7. | Site G | | x | | |
| 8. | Site H | x | x | x | x |
| 9. | Site I | | x | x | |
| 10. | Site J | x | x | x | |
| 11. | Site K | x | x | x | |
| 12. | Site L | x | x | x | x |
| 13. | Site M | x | x | x | x |
| 14. | Site N | x | x | x | |
| 15. | Site O | | | | |
| 16. | Site P | x | x | x | |
| 17. | Site Q | | | | |
| 18. | Site R | x | x | x | x |
| 19. | Site S | | x | x | x |
| 20. | Site T | | | | |
| 21. | Site U | x | x | x | x |
| 22. | Site V | | x | x | x |
| | Total | 14 | 19 | 17 | 11 |

*Note: 1 = Student elects Tech Prep
2 = Student develops plan
3 = Student takes vocational/technical courses
4 = Student takes applied academic courses

In the fall 1993 survey, only one Tech Prep consortium had student data to report. By 1994, the number of consortia had jumped to 10. The consortium reporting last year enrolled 170 Tech Prep students from the prior school year, while the 1993 enrollments in Tech Prep climbed to 2,203. Table 3 shows the breakout of reported Tech Prep students by grade level for both years. In 1994 there was a higher percentage of Tech Prep students in grades 11 and 12. For comparative purposes, Table 3 also shows the total number of secondary students in the reporting consortia. Tech Prep students represented 4 percent of secondary students in these consortia. Across the country, there were 435,195 reported by Mathematica Policy Research, Inc. as Tech Prep students, which represented 7 percent of the 9-12 graders from these consortia.

**Table 3**

**Number of Tech Prep, Vocational, and Total Students in Participating Districts for 1992-93 and 1993-94**

**(N = 1, 10)**

| | Tech Prep Students | | Total Number of Secondary Students |
|---|---|---|---|
| Grade | 1992-93 | 1993-94 | 1993-94 |
| 12 | 30 | 680 | 11,533 |
| 11 | 40 | 643 | 12,118 |
| 10 | 40 | 533 | 13,463 |
| 9 | 60 | 347 | 15,690 |
| Total | 170 | 2,203 | 52,804 |

To gain a better understanding of the distribution of Tech Prep students in Washington, it is useful to see the number of students by grade level by consortium. Table 4 displays such information. Site I reported the largest number of Tech Prep students (985), followed by Site A (936) and Site C (103).

**Table 4**

**Number of 1993-94 Tech Prep Students Reported**

| Consortium | Number of Districts in Consortium | Number of Tech Prep Students in Grades: 9 | 10 | 11 | 12 | Total | Graduates |
|---|---|---|---|---|---|---|---|
| Site A | 14 | 159 | 251 | 238 | 288 | 936 | 109 |
| Site B | 5 | | | | 80 | 80 | 6 |
| Site C | 8 | 0 | 1 | 95 | 7 | 103 | 7 |
| Site D | 1 | 0 | 0 | 27 | 21 | 48 | 5 |
| Site E | 3 | 0 | 1 | 3 | 0 | 4 | |
| Site F | 5 | 0 | 0 | 0 | 2 | 2 | 2 |
| Site G | 9 | 0 | 0 | 0 | 11 | 11 | 11 |
| Site H | 3 | | | | | | 25 |
| Site I | 1 | 188 | 280 | 261 | 256 | 985 | |
| Site J | 13 | 0 | 0 | 15 | 5 | 20 | 5 |
| Site K | 9 | 0 | 0 | 4 | 10 | 14 | 10 |

Tech Prep students represent a diversity of characteristics. Table 5 shows the distribution of reported secondary Tech Prep students by race/ethnicity, gender, and special population status. Approximately 10 percent of the students reported were non-White, and one-third were reported as female, although these figures may be inaccurate since in the prior year 48 percent of the Tech Prep students were listed as female. In terms of special characteristics, 6 percent were Limited English Proficient, 9 percent were students with disabilities and 37 percent were considered economically or educationally disadvantaged.

**Table 5**

**Characteristics of Secondary Tech Prep Students**

**(N = 1, 9)**

| Characteristic | Percentage of Students 1993-94 |
|---|---|
| Race/Ethnicity | |
| White | 89 |
| Black | 2 |
| Hispanic | 5 |
| Asian/Pacific Islander | 2 |
| Other | 0 |
| Gender | |
| Male | 67 |
| Female | 33 |
| Special Populations | |
| Economically/educational disadvantaged | 37 |
| Disabled | 9 |
| Limited English proficient | 6 |

Reported Tech Prep students were concentrated in the business/office/marketing career cluster. This cluster enrolled over half of all the Tech Prep students. The student data in the Mathematica report are all based on 1993-94 enrollments except for the question about enrollments of students by career cluster shown below in Table 6. This table is unique in that it is based on the 1994-95 schoo year. Thus, the numbers reported in Table 6 are larger than the numbers of Tech Prep students reported by grade level for 1993-94 in Table 3.

**Table 6**

**Enrollment of Secondary Tech Prep Students by Career Cluster**

**(N = 1, 8)**

| Career Cluster | Enrollment 1994-95 |
|---|---|
| Business/office/marketing | 3,542 |
| Mechanical/industrial/trade | 1,058 |
| Agriculture | 263 |
| Engineering/technology | 890 |
| Health/human services | 155 |
| Other | 110 |
| Total | 6,018 |

## 3. Articulation

Articulation agreements are formal signed arrangements between secondary schools and community colleges that enable community colleges to accept for credit certain high school courses that are part of a Tech Prep sequence. Articulated courses allow students to take higher level courses at the community college or complete their associate degree sooner. They also help to standardize coursework for students and avoid duplication. Table 7 identifies the characteristics of these articulation agreements. The most common feature of these agreements allows students who complete approved secondary courses to skip prerequisite or introductory courses at the postsecondary level. Ten or more of the consortia in 1994 had signed articulation agreements in business/office/marketing and in mechanical/industrial/trade while only two had an articulation agreement in agriculture as shown in Table 8.

## Table 7

## Number of Agreements Employing Identified Characteristics of Articulation Agreements

**(N = 12, 15)**

| Articulation Agreement Characteristic | Number of Agreements with Characteristic | |
|---|---|---|
| | 1992-93 | 1993-94 |
| Identify secondary courses or competencies for which postsecondary credits will be granted towards a certificate or degree, or that will allow students to skip prerequisite or introductory courses at the postsecondary level | 20 | 23 |
| Changing the content or competencies covered in postsecondary courses that are part of occupational sequence to eliminate gaps or duplication | 1 | 3 |
| Defining/changing the content or competencies covered in secondary courses that are part of an occupational sequence | 8 | 9 |
| Granting of advanced standing in apprenticeship programs based on secondary school program completion | 3 | 3 |
| Providing for joint or exchange teaching involving secondary and postsecondary instructors | 0 | 0 |
| Working with secondary partners to identify a sequence of required and elective courses or competencies at secondary and postsecondary levels to create a 4-year program of study | 13 | 15 |
| Assuring/guaranteeing postsecondary spaces for graduates of secondary Tech Prep programs | 3 | 5 |

## Table 8

## Career Cluster Emphasis of Articulated Programs

**(N = 15, 22)**

| Career Cluster | Number of Articulated Programs | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 0 | | 1 | | 2-4 | | 5+ | |
| | 1993 | 1994 | 1993 | 1994 | 1993 | 1994 | 1993 | 1994 |
| Agriculture | 13 | 20 | 2 | 2 | | | | |
| Business/office/marketing | 7 | 12 | 4 | 5 | 4 | 5 | | |
| Engineering/technology | 9 | 14 | 3 | 5 | 3 | 3 | | |
| Health/human services | 12 | 19 | 1 | 1 | 2 | 2 | | |
| Mechanical/industrial/trade | 6 | 11 | 5 | 6 | 4 | 5 | | |

## 4. Curriculum Development

As schools begin involvement in Tech Prep and efforts to integrate academic and occupational education, many start by purchasing and using commercially developed materials such as those produced by the Center for Occupational Research and Development (CORD) and the Agency for Instructional Technology (AIT). Table 9 indicates the number of consortia and secondary and postsecondary schools that reported using commercially available applied academics curricula. Applied Mathematics and Principles of Technology were used by one or more schools in at least 16 of the consortia. Similarly, the number of secondary schools using Principles of Technology grew from 83 to 98 and the number using Applied Math went from 97 to 115 while the number using Applied Economics and Chemistry in the Community stayed steady.

**Table 9**

**Use of Commercially Available Applied Academics Curricula**

**(N = 14, 19)**

| | Number of Consortia | | Number of Secondary Schools | | Number of Postsecondary Schools | |
|---|---|---|---|---|---|---|
| Curriculum | 1992-93 | 1993-94 | 1992-93 | 1993-94 | 1992-93 | 1993-94 |
| Applied Biology/Chemistry | 5 | 6 | 15 | 17 | 1 | 1 |
| Applied Communication | 11 | 15 | 69 | 85 | 6 | 7 |
| Applied Economics | 3 | 3 | 5 | 5 | 0 | 0 |
| Applied Mathematics | 13 | 16 | 97 | 115 | 6 | 7 |
| Chemistry in the Community | 2 | 3 | 4 | 5 | 0 | 0 |
| Principles of Technology | 14 | 19 | 83 | 98 | 4 | 6 |
| Other | 1 | 1 | 5 | 1 | 1 | 1 |

In terms of vocational curricula offered in the consortia, the most frequently identified areas were business/office/accounting, engineering/technology, mechanical/industrial/trade, and health/human services. Table 10 shows the number of consortia having at least one school with such vocational curricula.

**Table 10**

**Consortia with Defined Tech Prep Career Cluster Curricula**
**(At least one school implements vocational curriculum in the cluster)**

**(N = 7, 13)**

| Career Cluster | Number of Consortia | |
|---|---|---|
| | 1992-93 | 1993-94 |
| Business/office/marketing | 5 | 13 |
| Engineering/technology | 6 | 10 |
| Mechanical/industrial/trade | 3 | 10 |
| Health/human services | 5 | 8 |
| Agriculture | 3 | 7 |

## 5. Counseling and Guidance

Virtually all consortia have counseling and guidance activities for Tech Prep occurring in many schools. The Mathematica Policy Research, Inc. survey asked consortia to report on the types of career development occurring in their schools. Table 11 shows the activities reported for all or some schools within their consortia. It breaks out the activities at the elementary, secondary, and postsecondary levels. At the secondary level, at least three-quarters of the consortia reported having career development integrated into academic or vocational classes, individual counseling, career exploration software, trips to worksites, and special career development classes. At the postsecondary level, three-quarters of the consortia reported individual counseling, career development integrated into academic or vocational classes, career exploration software, trips to worksites, and job placement by course instructors.

## 6. Student Outcomes

While it is too soon to be able to detect outcomes for a large number of Tech Prep students on graduate data, this report presents some preliminary findings for the past two years. Table 12 shows the status of 82 Tech Prep program graduates reported by one consortium in 1993 and 126 graduates from eight consortia in 1994 terms of their future education. The numbers shown are both an under count and somewhat misleading. Often, the coordinators do not know what happens to their graduates after leaving high school. This is particularly true of students not going on to the local community college. In the case of Table 12 eight consortium directors reported data for students attending community college while only four reported data for Tech Prep students going on to a four-year college.

## Table 11

## Consortia Providing Career Development at Some or All Schools

## (N = 15, 22)

| Career Development Activity Type | Number of Consortia | | | | | |
|---|---|---|---|---|---|---|
| | Grade 8 or Earlier | | Grades 8 to 12 | | Postsecondary Level | |
| | 1992-93 | 1993-94 | 1992-93 | 1993-94 | 1992-93 | 1993-94 |
| Special career development classes | 6 | 8 | 12 | 17 | 13 | 16 |
| Career development integrated into academic or vocational classes | 8 | 11 | 15 | 19 | 15 | 20 |
| Individual counseling | 7 | 8 | 15 | 20 | 15 | 20 |
| Special Tech Prep counseling materials | 3 | 4 | 9 | 12 | 6 | 7 |
| Development of secondary/postsecondary student plans | 2 | 2 | 9 | 11 | 5 | 5 |
| Career exploration software | 4 | 7 | 15 | 20 | 13 | 17 |
| Trips to worksites | 2 | 6 | 14 | 18 | 12 | 17 |
| Job placement by course instructors | NA* | | 11 | 13 | 14 | 19 |
| Job placement by guidance counselors | NA | | 12 | 14 | 12 | 11 |
| Job placement by special placement staff | NA | | 9 | 10 | 11 | 14 |
| Other | 0 | 0 | 2 | 0 | 0 | 0 |

*NA = Not applicable

## Table 12

## Educational Activities of Tech Prep Graduates

## (N = 1, 8)

| Institution/Activity | Number of Students | |
|---|---|---|
| | 1992-93 | 1993-94 |
| Community colleges, junior colleges, and technical colleges | 50 | 111 |
| Four-year colleges or universities | 21 | 7 |
| Proprietary postsecondary schools | 0 | 0 |
| Registered apprenticeships | 0 | 3 |
| The armed forces | 11 | 5 |
| Other | 0 | 0 |
| Total | 82 | 126 |

## 7. Consortium Governance

There are a number of educators and business people involved in planning and implementing Tech Prep in Washington. Table 13 shows the reported number of people by type who have been involved. There were 260 secondary schools, 56 postsecondary institutions, 168 businesses, and 40 labor groups reported as being involved in planning or implementing Tech Prep in 1994. These numbers are somewhat inflated since there is an overlap across Tech Prep consortia. For example, Table 13 shows 37 community, junior, and technical colleges involved while there are only a total of 32 in the state. However, some community colleges are situated in more than one consortium. The mean or average number of people per group remained relatively the same as in the prior year while the total number of groups involved increased significantly.

**Table 13**

**Number of Agencies Involved in Planning or Implementing Tech Prep in Washington State**

**(N = 15, 22)**

| Type of Institution/Organization | Total Number Involved | | Mean | |
|---|---|---|---|---|
| | 1993 | 1994 | 1993 | 1994 |
| Local school district that has any schools actually engaged in planning or implementing Tech Prep | 105 | 165 | 7.0 | 7.5 |
| Secondary school actually engaged in planning or implementing Tech Prep | 166 | 260 | 11.1 | 11.8 |
| Independent area vocational/technical center or district | 1 | 17 | .1 | .8 |
| Independent area vocational/technical center actually engaged in planning or implementing Tech Prep | 1 | 17 | .1 | .8 |
| Community college, junior college, and technical college | 26 | 37 | 1.7 | 1.7 |
| Four-year postsecondary institution | 4 | 11 | .3 | .5 |
| Postsecondary proprietary institution | 4 | 1 | .3 | .1 |
| Postsecondary apprenticeship program | 9 | 7 | .6 | .3 |
| Other educational agency | 21 | 17 | 1.4 | .8 |
| Business/corporation | 108 | 168 | 7.2 | 7.6 |
| Business/industry or trade association | 15 | 15 | 1.0 | .7 |
| Individual labor group | 18 | 40 | 1.2 | 1.8 |

It is important in considering the governance of Tech Prep to determine who serves on the consortia's governing boards. Table 14, reflecting findings from the Mathematica Policy Research, Inc. surveys, indicates that 20 of the Washington consortia involved secondary

and postsecondary administrators, 12 had company and/or industry associations, nine had postsecondary faculty representatives, and eight involved secondary counselors in 1994.

**Table 14**

**Representation on Consortium Governing Boards**

**(N = 15, 22)**

| Type of Members | Number of Consortia | |
|---|---|---|
| | 1992-93 | 1993-94 |
| District/school administrator | 14 | 20 |
| Postsecondary administrator | 14 | 20 |
| Company representative | 12 | 11 |
| Postsecondary faculty | 6 | 9 |
| Business/industry associate | 6 | 12 |
| Secondary counselor | 6 | 8 |
| Postsecondary counselor | 1 | 2 |

## 8. Funding

The largest source of funding in Washington and elsewhere for Tech Prep planning and implementation is Title III E of the Carl Perkins Act. Title III E sources contributed almost $90,000 on the average to each of the consortia in 1993 and approximately $72,000 in 1994. Local and business funds have been added to supplement the Perkins grants. Table 15 indicates the mean (average), and maximum of each source of funding.

In addition to knowing the source of funds, it is equally important to know how they are being used. Table 16 shows the percentage of funds used for various expenditures. Most funds are used for general administration of the consortia and for staff development. While the percentage of funds used for general administration of the consortia has decreased since last year, the percentage used for curriculum development, equipment and materials has increased. These figures are about the same as those reported for the national averages except that Washington is spending somewhat more on staff development (31 percent versus 22 percent nationally). The fact that Washington is spending a larger percentage on staff development may indicate a better chance of the Tech Prep changes being understood and effectively used by teachers.

**Table 15**

**Sources for Tech Prep Funding**

**(N = 15, 21)**

| Funding Source | Mean | | Maximum | |
|---|---|---|---|---|
| | 1992-93 | 1993-94 | 1992-93 | 1993-94 |
| Perkins Act Title IIIE Tech-Prep grant | $89,408 | $72,201 | $250,000 | $150,000 |
| Perkins Act Title IIC funds | 4,544 | 9,461 | 35,000 | 65,000 |
| Other Perkins Act funds | 17,196 | 1,372 | 212,144 | 22,870 |
| State funds | 0 | 3,356 | 0 | 48,969 |
| Financial contributions by consortium members | 11,105 | 8,103 | 80,000 | 75,000 |
| Financial contributions from:<br>• Businesses/corporations,<br>• Business/industry or trade associations,<br>• Labor organizations | 16,667 | 10,000 | 50,000 | 50,000 |
| Financial contributions from foundations | 0 | 0 | 0 | 0 |
| Other local funds | 1,867 | 1,750 | 18,000 | 22,938 |
| Other | 667 | 30,295 | 10,000 | 181,766 |

**Table 16**

**Types of Tech Prep Expenditures**

**(N = 15, 20)**

| Expenditure Area | Percent Mean | |
|---|---|---|
| | 1992-93 | 1993-94 |
| General administration of the consortium | 29 | 25 |
| Staff development activities | 28 | 31 |
| Curriculum development and review | 12 | 19 |
| Equipment or materials for secondary and/or postsecondary programs | 8 | 11 |
| Marketing/promotion | 5 | 4 |
| Evaluation activities | 1 | 2 |
| Allocations made by the consortium to consortium educational institutions for their use | 10 | 8 |
| Other | 8 | 4 |

## 9. Business/Industry Involvement

Although there are many ways to classify business involvement in Tech Prep, the Mathematica Policy Research, Inc. staff decided to organize the types of assistance under three categories: working with students, working with staff, and providing material resources. In terms of working with staff, Table 17 indicates that over half the consortia reporting

provided facility tours, assistance to educators in defining desired outcomes, curricula, and staff development, speakers, and youth apprenticeship and/or worksite learning slots. Table 17 also provides comparative data for the nation as a whole.

**Table 17**

**Type of Business and Industry Involvement**

**(N = 10, 18)**

| Type of Assistance | Number of Consortia 1992-93 | 1993-94 |
|---|---|---|
| Working with Students | | |
| Providing facility tours or other career awareness events | 2 | 13 |
| Hiring graduates | 0 | 1 |
| Providing youth apprenticeship and/or worksite learning slots | 7 | 9 |
| Working with Staff | | |
| Developing curricula | 6 | 13 |
| Helping support staff development | 6 | 12 |
| Providing speakers and/or classroom instructors | 3 | 10 |
| Defining desired outcomes | 7 | 13 |
| Helping define career areas | 5 | 7 |
| Providing Material Resources | | |
| Equipment, materials, space | 3 | 8 |
| Awards and scholarships for students | 1 | 4 |

## 10. Perceived Strengths

Consortium directors were asked to identify the most successful aspects of their Tech Prep consortia at the secondary and postsecondary levels. The responses were relatively similar for the secondary and postsecondary levels except for one area. At the secondary level, 13 of the consortium directors reported good collaboration between vocational and academic educators while at the postsecondary level only seven Tech Prep directors indicated this to be true. On the other hand, building networks with other Tech Prep programs was seen more often at the postsecondary level. Similar patterns were found in 1993. Table 18 shows the areas rated as successful.

**Table 18**

**Successful Aspects of Tech Prep Consortia**

**(N = 15, 22)**

| Tech Prep Aspect | Number of Consortia | | | |
|---|---|---|---|---|
| | Secondary Level | | Postsecondary Level | |
| | 1992-93 | 1993-94 | 1992-93 | 1993-94 |
| Developing administrative support | 10 | 14 | 8 | 13 |
| Collaboration between secondary and postsecondary educators | 9 | 16 | 8 | 15 |
| Collaboration between vocational and academic educators | 11 | 13 | 6 | 7 |
| Establishing and adopting clearly defined Tech Prep guidelines/objectives | 7 | 9 | 5 | 8 |
| Developing articulation agreements | 7 | 10 | 6 | 9 |
| Providing a high degree of involvement and support at the state level | 6 | 6 | 5 | 5 |
| Obtaining the support/involvement of business/industry and labor | 9 | 12 | 10 | 12 |
| Building networks with other Tech Prep programs for mutual assistance/advice within the state | 8 | 9 | 11 | 12 |
| Developing increased awareness of Tech Prep in the educational community and the public | 9 | 11 | 8 | 10 |
| Integrating Tech Prep into larger reform efforts | 8 | 9 | 4 | 4 |
| Applying the TQM* approach to implementation | 1 | 2 | 1 | 1 |
| Other | 0 | 0 | 0 | 0 |

*TQM = Total Quality Management

## 11. Perceived Limitations

The Washington Tech Prep consortium directors identified for both the secondary and postsecondary levels "the lack of staff, time, and money dedicated to Tech Prep" as the greatest obstacle, followed by a lack of truly integrated curricula. These were also the top barriers identified by Tech Prep consortium directors across the country. Only a few consortium directors reported obstacles in negotiating Tech Prep articulation agreements. Table 19 provides responses of both secondary and postsecondary levels.

From a state-level perspective, it is important to note that over half of the consortium directors indicated a problem with conflicts with other reform efforts. This suggests the need to help local educators see how Tech Prep fits with these other educational reforms.

## Table 19

## Greatest Obstacles to Tech Prep Implementation Identified at the Secondary and Postsecondary Levels

**(N =15, 22)**

| Tech Prep Obstacle | Number of Consortia | | | |
|---|---|---|---|---|
| | Secondary Level | | Postsecondary Level | |
| | 1992-93 | 1993-94 | 1992-93 | 1993-94 |
| Negative attitudes toward vocational education and/or Tech Prep | 9 | 12 | 7 | 10 |
| Resistance of vocational educators to change | 4 | 7 | 3 | 7 |
| Resistance of secondary schools to replacing the general track | 9 | 13 | NA | |
| Turf battles between secondary and postsecondary educators | 9 | 10 | 9 | 10 |
| Difficulty of defining curriculum reform/revising curricula | 6 | 8 | 5 | 7 |
| Difficulty in negotiating articulation agreements | 1 | 1 | 3 | 3 |
| Lack of definition of student participation in Tech Prep | 4 | 6 | 2 | 4 |
| Lack of truly integrated curriculum | 11 | 14 | 7 | 10 |
| Lack of support/involvement for Tech Prep among local administrators | 7 | 8 | 5 | 6 |
| Lack of collaboration between secondary and postsecondary educators | 4 | 4 | 4 | 4 |
| Lack of collaboration between vocational and academic educators | 6 | 8 | 5 | 8 |
| Lack of staff, time and money dedicated to Tech Prep | 13 | 17 | 10 | 14 |
| Lack of support/involvement of business and industry | 6 | 9 | 4 | 7 |
| Lack of business and industry in the state/region | 0 | 0 | ) | 0 |
| Difficulty accessing sources of information about how to develop Tech Prep | 0 | 0 | 0 | 0 |
| Constraints/conflicts in class scheduling | 4 | 4 | 1 | 1 |
| Problems defining Tech Prep guidelines/objectives | 5 | 6 | 3 | 4 |
| Conflicts with other reform efforts | 11 | 12 | 9 | 9 |
| Application of the TQM* approach to implementation | 1 | 1 | 1 | 1 |

*TQM = Total Quality Management